Clean Version of Abstract

Abstract

Fuel Cell Having Interdigitated Flow Channels
and Water Transport Plates

A fuel cell power plant includes a fuel cell having a membrane electrode assembly (MEA), which is disposed between anode and cathode support plates. Porous water transport plates or the support plates have interdigitated flow channels for the reactant gas streams to pass through and conventional flow channels for coolant streams to pass through. The pressure of the reactant gas streams is greater than the coolant stream which, within the porous water transport plates allows the coolant water to saturate the water transport plates thereby forcing the reactant gases into the anode and cathode support plates. This, in turn, increases the mass transfer of such gases into the support plates, thereby increasing the electrical performance of the fuel cell. Current densities of about 1.6 amps per square centimeter are achieved with air stochiometries of not over 2.50.